

Hatching a plan for Aquaculture Education: Convening a Community of Practice:

Maggie:

Hi, everyone. It is 4 PM Eastern time. We are going to give everyone a minute on how to get settled. If you would like to introduce yourself in the chat to say where you are from or where you are joining us today that would be great, and we will get started in just a minute.

All right so we will get started. Thank you for joining us today. Welcome to our CELC Aquaculture webinar. We have one of our own, Brianna Shaughnessy one of our Knauss Marine policy fellows in our NOAA Office of Education who will be talking to us today about how we are convening a community of practice to strengthen Aquaculture education. I am Maggie Allen, Education and Grants Specialist for NOAA's Office of Education, and I will be facilitating today's webinar.

All right so first we have to go through a little bit of housekeeping before we get started. I am sure many of you are very used to virtual meetings by this time, but I know Adobe is maybe not as frequently used as others, so hopefully everything will be smooth but if you are having difficulties, we do recommend opening Adobe Connect via the application instead of the browser. It should have popped up around the time you clicked the link asking you to choose so when you download the app it tends to work a bit better. If you are having problems right now, and you can still hear me, you might want to exit out and rejoin via the application. The same goes if you are having sound issues, sometimes calling it via telephone might work better than listening through the platform so if you can hear me say this but maybe are having sound issues, we recommend maybe dialing back into the toll-free conference. Of course if everything is working fine you can disregard that but sometimes these ways are less problematic. If you have called in via Adobe app or on your phone, please mute your speakers. During the presentation, please type any questions you might have into the chat box and Brianna will answer them after your presentation. You are free to unmute yourself and raise your hand during the Q&A to ask the question out loud. People are experimenting with the raise your hand function, the little person at the top with a raised hand so if you would like to speak up at any point, just raise your hand and of course there are a bunch of other options there as well if you are having any -- you know, if you want to speak louder or anything like that. And lastly, this webinar will be recorded so if you'd like to listen to this again at the end, if you miss some of it or want to share with any of your colleagues we will be sending out a recording about 24 hours after this and it will also be on our website as well.

All right so we know some of you are part of this network and some of you have listened to a couple of webinars in the past. Apologies if it may be repetitive but for those of you who are new to us today, I want to give a quick background about who the host is of this webinar. So the Coastal Ecosystem Learning Centers (CELC) Network is a partnership of 25 aquariums that are across North America and our office, NOAA's office of education. We have had an Aquaculture initiative for the last few years and similar to the overall goal of the CELC network, the goal is to better connect NOAA resources so that they can engage the public sustainable aquaculture. This webinar series it is one of many activities the initiative has so we can meet that goal. If you have any more questions about the network, or the initiative after today you can contact either me or Brianna if you would like to be added to one of the listeners.

I would like to introduce Brianna Shaughnessy who is going to tell us about the results of a NOAA wide aquaculture invitation survey and how these are being used to understand gaps and opportunities and inform a workshop and a mini-grants workshop. So Brianna is a 2020 Knauss Marine policy fellow and NOAA's aquaculture education coordinator. Brianna is a graduate of Northeastern University Masters program in marine biology and she is currently a PhD candidate at the University of Massachusetts Boston where she studied -- seagrass farming expansion in Rhode Island and her research focuses on the development of sustainable aquaculture practices and her long-term goal is to act as liaison between the community and the scientists and policymakers working to understand and promote sustainable agriculture so with that I am going to stop sharing and I am going to be quiet and you can take it away, Brianna.

Brianna:

Awesome. Thank you. Maggie, I'm just going to share my presentation. So thank you everyone for joining us today. I am excited to share some of the work we have been doing this year. And how it connects to some of the longer-term Aquaculture education efforts within the agency. To give you an idea of what you are up for, I'm going to talk about challenges of Aquaculture and how research and education can combat those challenges and I will give background and rationale on our initiatives and our work building an Aquaculture community of practice, a little bit of an update on efforts thus far and we will go over some lessons learned

and next steps. So I'm here today by way of Gerrit Byrnes Lab where I am a PhD candidate. Through my work with the Byrnes Lab and through a two year fellowship my dissertation really shift into this collaboration between my formal training and my upbringing on Cape Cod. My research now focuses on the sustainable growth of seaweed farming in New England. I am here today to talk about my Knauss fellowship. So the Knauss fellowship is driven by the sea grant that matches students with hosts of legislative and executive branches of the government and those students gain experience in ocean, coastal and Great Lakes resources and learn about the national policy decisions that affect those resources. So this year I am sponsored by MIT sea grant, a 2020 Knauss fellow and it ended up being the perfect year for me to join the Knauss cohort, the national office of aquaculture and education and sea grant office came together to host the first ever joint fellow in aquaculture education. On the last of these photos we have the four teams who are hosting and mentoring me this year. Brooke Carney, Christos Michalopoulos, Cindy Sandoval are my core group that have taken me on. Maggie Allen has been helping all along the way. And together we put together kind of a steering committee to represent kind of a diversity of expertise and experiences across the agency in order to make sure that our efforts are really driven by the perspectives that are involved in aquaculture work at NOAA. We have Linda Chilton, Ken Riley and Chris to represent our diversity in those efforts as we put together some of the work we have been doing here.

So the United States has been working to foster sustainable aquaculture practices over the past 30 years. Sustainable aquaculture must meet NOAA's bottom line of environmental, economic and social sustainability so one piece of tackling the sustainability is to build a deep understanding of and also successfully address gaps in educational efforts that can be robust for public understanding of aquaculture topics. NOAA as an agency is committed to tapping into this power of public understanding by monitoring these knowledge gaps and using best practices to use to address the diversity of audiences that have a stake in aquaculture that you can see here.

Aquaculture involves complex issues. To name a few we have regional variations because of the use of public spaces for commercial development, we have environmental impacts such as exploitation of natural resources, we have industrialized farming, animal welfare, and in addition to this, aquaculture practices themselves vary widely across the region and across species. Finfish, -- fish and -- are key players but even within various sectors there are vastly different approaches to harvesting technologies for those species. Scallops for example can swim so the gear that is required to farm those shellfish is much different than the gear that would be required to farm mussels which can grow happily on a rope that is large enough for them to eat. These are multidimensional complex issues in there all right. The public is challenged with all of them when deciding their level of support for aquaculture within their community.

Because aquaculture means so many different things, the public is essentially expected to do its own research and determine their stance on different aquaculture products and this can lead to the spreading of confusing information and when we are faced with too many complex issues -- stick to what we know and this is something that psychologists -- choice and housing these complex, located topics make gaining public support more challenging and if we are going to avoid this paradox of choice, you can check to see how we need to on packages you both as it relates to aquaculture and as it relates to specific regions and communities and if you take that a step further, it is also important to share approaches and challenges and successes among regions in order to build a robust national approach.

Many before us have successfully tackled these complex and -- issues by connecting and factoring the diversity of learning into learning experiences. Networks have been billed to effectively communicate topics like climate change -- and -- debris among others all along the way, NOAA has been supporting and collaborating on efforts when it comes to these complex topics and these topics like the one you see here and that you might be a part of other key into ensuring that our science and NOAA guidance can be leveraged to the best of their potential and shared effectively. We want that for aquaculture, too. We want to ensure that the research advancements and the achievements and sustainably expanding domestic aquaculture reach their diversity of public audiences like those millions of visitors that our aquarium partners serve each year. Building on this important partnership, I'm going to take a turn for a moment to talk about these networks has really helped with public confusion surrounding environmental topics.

So I could fill an entire semester long talk with the exemplary efforts of the environmental educators to tap into unique community perspectives and crafting engagement opportunities on complex topics. If you are a CELC member today you had the chance to hear about one approach that is an exciting new publication out

of the office of education that is a collaborative effort -- if you are interested in these topics at the end of the webinar, I highly suggest that you check out this publication. You can find it at the top at the website on the top right of this slide. Briefly, though, if you are looking to change the nature of your community and build resilience within that community it is not effective to just go into the community and tell them how they need to approach things. We take recycling as an example. One of the community's efforts in recycling can really make a huge impact but in order for a community to properly recycle, it needs to be more than just an understanding that recycling is a good thing and in order to truly shift to environmentally responsible long-term behavior when he first need to understand the knowledge that is held within the community, where it comes from and strategies that work best for the community to enhance engagement. This leads to and influences the disposition of members of the community towards recycling which can affect the motivation of the members -- into those efforts. Moving further the knowledge and position are interconnected with the skills in the community, skills can be the ability to ask relevant questions like where is my recycling going, what bins are needed as well as the ability to create and evaluate plans as issues arise.

All of this leads to the community's ever evolving behavior. Whether or not the community recycles and believes in recycling as an environmentally friendly habit and understands how to properly recycle is all impacted by all of these pieces including the personal, social and physical relationships that community has within itself. And that the community has with this complex issue and how they are engaged in tackling it. Building this change into the community, you can kind of build the deeper sense of connection across community members and in doing so, you can build resilience within the and start to change the behavior that might help the community longer-term. If you can tap into all these different aspects of how the community relates to the problem. Now, this serious change literature, I simplified it quite a bit but it really creates a guidebook from which to understand on a theoretical level how to effectively implement engagement plans within the community. Another important layer within this are the networks through which best practices are learned and programmed and developed.

One of those programs and one example is the national network for ocean and climate change interpretation or the NNOCCI network. Since 2009, NNOCCI has been a collaborative effort to raise the discourse around climate change and ocean --. The goal is to disseminate research through science communication lens and in doing so, NNOCCI members are able to shift the conversation and inspire action by speed discussing specific solutions unique to the community. This is really tapping into this community lines to educate the public to meet them where their needs are. NNOCCI members' ability to communicate effectively and deliberately would be to diverse audiences really contributes to a better understanding of climate change among the people that we talked to and in turn, these people are more likely to take action and try to solve climate change problems and also be attentive to messages of climate change solutions. This is achieved by, in part, equipping educators and scientists with four rules to bring their messages to the public and those include knowledge about climate change science and topics, effective communication techniques through which to share that knowledge, a supportive community of NNOCCI members that they can turn to if they run into any problems, or have any successes they want to share, and confidence to do this difficult work. And these tools and networks don't just kind of up here by willpower overnight. They really require consistently assessment and collaborative conversation. This is the framework that NNOCCI works off of with their educators as they build their programs. Many of you may be familiar with the NNOCCI network because it is largely driven by aquarium partnerships and these programs have found great success by connecting often to share experiences, resources, build their own collaborative community with their partners and for one example they have found great success in creating infographics that catered rectally and specifically to certain communities and we believe working off of these networks and building these exemplary models will really help us track tackle the complexity of aquaculture topics and perception.

To circle back to aquaculture education these exemplary efforts like the NNOCCI network are parallel to how we can approach the public on complex aquaculture topics, but these are challenging conversations. Production has its challenges and benefits and we are not here to magically fix those. We are here to find really common ground and most of us agree on a large majority of these topics. We want a healthy planet, sustainable species and sustainable species to be available for our future generations but there are some environmental NGOs, fishing groups and other industries that are local detractors. These folks have strong voices and effective lobbying and it is the small portion of these conversations where we don't communicate that will push people out of the conversation and keep them from helping it move forward. NOAA as an agency is in an interesting position sitting at the middle of these conflicting groups. We do aim to provide unbiased information to each but what we really need to do is engage both of these sciences with the public

to have honest discussions and these discussions can focus on the latest advances and challenges that need to be resolved, but they really should be driven by community specific -- and needs and we aim to do this by leveraging the existing trust that NOAA and aquarium partners have built over the years with stakeholders and with the public in order to find neutral ground for discussing aquaculture both locally, nationally and at a global level and this is really where the community of practice comes into play. So by creating this group of educators that are supported and provided with clear information and tools and we can leverage resources, share best practices and discuss what has been learned in order to share the incredible and consistent messaging is contributed to our partners and the goal in doing this is to really increase the public sense of understanding of what aquaculture is within their communities, whether or not is it a sustainable project for them within their community and allow them to take ownership of their aquaculture products.

So how are we going to build this community of competent aquaculture collaborators? For those of you attending from outside of the network today, the office of education first got involved with aquaculture education in 2017 in order to ensure that our CELC aquarium partners were provided with the best available information and expertise, Christos and Maggie Allen reached out to our NOAA colleagues that focus on aquaculture. They were in the office of aquaculture and the NNCOS and with the help of the help of these aquaculture folks, Maggie Allen helped connect folks with NOAA's aquaculture folks using efforts such as this webinar series that served really as a foundation of our efforts today. We made some really good progress in building capacity among our grant partners and connecting them with aquaculture researches, personnel and that led to the idea to build on the aquaculture efforts within CELC and start to coordinate these education activities across our agency. Then came me and I was really floored when I saw the position description because it was an exact match for my background and interests and I just want to take a second to thank again the office of education office of aquaculture and national Sea Grant office for their support in hosting me this year. Thank you for helping to make this happen, but what is it we have been doing to reach our goal of coordinating efforts and how are we going about that?

Our first step was really to define the problem that we wanted to tackle and also to develop and have an understanding of what was going on at the NOAA agency level and resources that we could leverage, and I wanted to share the effort and our rationale in getting to eventually share a plan to move forward so there is a lot going on here and I am going to speak a second to walk through it. We have our multidimensional problem as I mentioned. We have high variability in what aquaculture means under different circumstances and in different regions. We don't really have a pipeline for credible and up-to-date information for the public and there is not much of an existing effort to coordinate NOAA's resources and use education as a strategy to combat this. Our idea is that convening and supporting a NOAA aquaculture education community of practice, we can ensure that the agency is collaborating to share the best resources available with folks like our aquarium and industry partners in order for them to be able to educate their public audiences. In doing so, we support aquaculture expansion by creating competent educators who in turn create informed students.

We are tackling all this to an angle of -- enhancing the public's general understanding of what aquaculture means and the approaches to ensure aquaculture literacy and this doesn't come without assumptions. The assumption is that aquarium and industry partners are willing and able to participate in some collaborative activities that we put together which includes a workshop and some mini grant opportunities that help foster these connections we are talking about. Now COVID-19 has really thrown us all for a loop to put it lightly. We are closely monitoring the impact of the pandemic on our aquariums and we are really adjusting and developing our mini grants opportunities in a way that both can support them and align with their capacity at this time. So prior to this workshop and mini grants opportunity we started with a NOAA wide inventory survey to do what I mentioned before which was really understand what was happening at the NOAA agency level. That survey went out this past March and we collected 74 responses across NOAA offices and programs. I know a lot of you were in the webinar that we dove kind of deeply into the results for this survey but -- and there is a recording of the webinar online then I am happy to share if you reach out to me directly. I'm going to give the broad strokes here as a reminder. Most of our responses came from our Sea grant network which makes sense because they are our largest network within the family. We have had quite a few responses from fisheries colleagues and other category represents folks from the national -- service, from our grantees and other such programs.

We identified up to three gaps in NOAA's existing aquaculture education efforts and some of these gaps we took a look at the 100 or more total responses and made them more digestible by putting them into groups

that you see here. As you see here, the messaging theme was the largest group of gaps responses. To give you an idea of how we quote responses for this group this is any call for training on providing messaging to the public or to different stakeholders, more regional and species specific messaging and balance or transparent messaging that acknowledges the pros and cons of different types of aquaculture.

Now within the messaging category, most of the responses fell within these kind of majorly system based content categories and the agreed-upon common messaging categories and I will give you just a second to read some of those responses here. Now a smaller percentage of those responses fell within kind of balance messaging or messaging technologies with pros and cons of aquaculture. There were also some calls for direct homeowner or property outreach and updates to existing information. You can kind of start to see how these build upon each other and many of them are interconnected. Our second most popular gap that was identified by our respondents was sharing resources. This category really kind of focused in on the idea that we need to tap into these accessibility issues and help folks be aware that these resources even exist and any resources that have to do with aquaculture that might help the public understand different aquaculture topics, this kind of taps into the pipeline of information that is needed in order to get kind of folks aware of what information is out there. Responses also called for taking those and connecting them more deliberately across NOAA line offices so many of us worked in different capacities with different audiences and connecting best practices for each of those audiences across the agency is another thing that folks called for. And something, you know, this is a problem that I came across when creating this webinar. This infographic that I used at the beginning is really awesome. It shows all the different types of aquaculture and the ways that the working waterfront can be used for diversity but I did not know that this info graphic from the national Ocean service existed until I kind of Googled aquaculture infographics the other day so I think this really gets out how there are so many great resources out there but there is more recognition but we need a more direct pipeline in which to do so. So there were a ton of gap items identified here come a 104 to be exact. A lot of great information and information that is helpful not just to us in our efforts but also to other folks across NOAA and other NOAA partners that we can't possibly tackle all of this in one unit and we need to acknowledge that certain efforts in particular and others are quite in there and what we can do is find some overlap across NOAA offices and start to tackle some of those common gaps moving forward and things like our problem statements for mini grants opportunities and the discussions that we have at some of our workshops.

Our first workshop actually happened a few weeks ago. The goal of this workshop was really to help us understand who the agency might be engaged in aquaculture education. Efforts and also maybe interesting interested in get engaging in a community of practice moving forward. We convened virtually on September 22 to allow these NOAA folks that might not normally have the chance to connect an opportunity to kind of get to know each other and get to know each other's names and connect across the agency. We broke out also into some regional discussions to talk about some of the broader topics surrounding aquaculture in the region. One of the up sides of our virtual reality is that folks can kind of join from the comfort of their own region. At one point we had about 62 people on the line which was great. It was initially kind of a small in person workshop but it was great to see so many faces from such a diverse background of knowledge and expertise across NOAA and it also gave me a chance to shamelessly use my -- as an icebreaker.

We learned a lot of great lessons from this workshop day. Convening through a virtual space for this what came with challenges but there could always be more time for discussion which is great. We want to continue this discussion longer-term. Many public conceptions and misconceptions seemed to stem from this diversity of meanings of the word aquaculture and this is really perpetuated by this lack of credible organized information through which to or a pipe line through which to gather information about aquaculture topics so awareness came out as a key gap. Aquaculture presents a great opportunity for stem engagement and stem careers. It is a great career for folks that might not want a desk job at night what not want to work in a lab. It Provides an opportunity to get out and work within the environment and educating youth on these opportunities is a really important gap that we have kind of identified. Another gap was one-size-fits-all is not going to work in our messaging and understanding of what the community level means and clearly defined target audiences for educational efforts are crucial to the effectiveness of communication techniques, as we learned kind of with the NNOCCI network and other networks that worked on this technique in the past and we need to tackle this idea that aquaculture products threaten commercial fisheries and might not be as healthy as wild products is one of the misconceptions and misconceptions that are common at a national level. We discussed how a successful community of practice will need to connect across disciplines, connect often and share resources and best practices and as that last thread indicates, this is a long-term effort that will take time and multiple meetings but again, we are invested in positioning NOAA as a credible

source of information and a means through which to find that information much in the way that we have been for ocean another climate research in the past.

There are tons of great efforts across all of these partners. If you attended our last webinar you heard about the Eat Seafood America campaign. Many aquariums are participating in conversations about aquaculture and not just aquariums. NOAA fisheries has great resources in the video gallery on their webpage. They've been supporting the Great Lakes aquaculture collaborative network, which wishes to coordinate across the Great Lakes region. Aquarium of the Pacific has their Seafood for the Future exhibit and detailed websites about their farms and what goes on these farms and even aquaculture society has a website about careers in aquaculture but the question here remains, how do we start to connect these efforts and how can we invest in building capacity for having conversations across these groups and make not just connections but also a list of best practices and a community through which to share those? If we can put the puzzle pieces together so they are not such sideload efforts but rather a network of efforts, we can learn from each other and kind of distribute the burden as we tackle this complex topic moving forward.

Now that we have worked the conversation across NOAA with our first workshop, we are ready to connect with our aquarium and industry partners to kind of chart our course forward. The next opportunity for this, an opportunity to engage will be our November workshop period which will be open to CELC members. This series will convene again virtually on November 18 including November 20. We will discuss aqua education and audiences and we will do a little bit of matchmaking for many grant opportunities which will roll out in early 2021. For CELC members to register you can contact me directly and if I have made my case well enough today than you will appropriately be excited to do so but again this is the beginning of a longer-term effort that requires connecting consistently across disciplines moving forward and we hope that we can use enough practices to ensure that NOAA can truly stay a part of the source of credible up-to-date resources that are part able to advance aquaculture education conversations moving forward so with that, thank you all for attending. I will take some questions if you have them and please, feel free to reach out to me if you would like that webinar recording or any other resources I mentioned today.

Maggie:

Thank you so much, Brianna. It Looks like we have some questions coming in already. I will just read them to you. So Sam asks, you said the aquaculture infographic displayed was informative, but the audience might not be immediately intuitive upon the benefit of seafood consumers. Do you think resilience might have additional definitions?

Brianna:

I think aquaculture resilience has a lot of different meanings to a lot of different audiences. You can talk about resilience through the lens of the theory of change publication that just came out or you can talk about a kind of on a more physically resilient level. I think Sam, you bring up a good point of kind of identifying the terms within each infographic or educational pamphlet or program and really kind of defining what those terms mean, keeping in mind the audiences that might be interpreting those.

Maggie:

And again, if you want to ask questions, you are welcome to type it in the chat box. You are also welcome to raise your hand by clicking on the little person on the top of your screen and you can ask a question out loud. And Sam said thank you.

Brianna:

Thanks and you're welcome, Sam.

Christos:

Thanks, Brianna. Great job. You mentioned that CELC members can attend the November workshop. Who else can attend the November workshop?

Brianna:

Our November workshop is open to NOAA colleagues and many of them attended our first workshop and we hope to see you again at the second workshop. We are also opening the workshop up beyond our CELC members to our industry partners so on my end I have a couple of folks that I collaborated with on my dissertation research that will be joining that workshop and if you know anyone or if you are someone that is interested in participating in these talks about aquaculture education, you can reach out directly to me in

order to register. If you are connected to a mini grant program then we think that would probably be the most relevant group of folks to join us at that workshop.

Maggie:

Yes, I did want to draw attention to the theory of change resilience education a couple of times. I put it in the chat box. It is a great resource for community resilience. And Sam just asked, how are growers in the industry engaged, any cool insights from them on the message?

Brianna:

That is a great question, Sam and we are hoping to get some insight from them at our next workshop. On some of the different audiences that they might interact with on their farms. That could create some personal conversations. Farmers that I work with in New England are really interested in some messaging that they can provide and a toolkit of ways to provide messaging about their farms that doesn't cause them to have to like go down the research rabbit hole when they're trying to look into some of the environmental impacts and things that folks ask about when they visit their farms so we are hoping to kind of build that angle and tore workshop into our workshop discussions and how we can kind of use many farmers are small-scale efforts with their farms and experiments, right so using kind of that wealth of knowledge about the environment that exists within the farmers is something we hope to capture.

Maggie:

Matt said with 90% of your seafood coming from abroad and major contributions from aquaculture, will a proposed aquaculture education plan address international aquaculture?

Brianna:

So through the lens of how it connects to domestic aquaculture topics I think it is completely relevant to bring an explanation about what is happening globally, but since we are starting efforts in building it from the ground up I think we are focusing on domestically the region, you know, New England, West Coast, Alaska, Pacific Islands, Southeast, those areas and trying to coordinate these kind of regional level needs and community level perspectives in order to combine together to create a more national approach and then we might be ready to take it international after that but for now, we are pretty focused on the domestic area.

Maggie:

I have a quick question for you. How do you see social science research and especially perception research playing in how these educators may design their specific programs since it is so different across the U.S. and the world?

Brianna:

Yeah, so this is really kind of a social science topic that we are trying to tackle here, right? In order to effectively reach certain folks then we need to kind of meet them where they are at and that means that different audiences have, in order to effectively make the information stick so in order to create exciting programs and exhibits that reach wider obvious audiences, we need to take the social science perspective on things and really think about incorporating people's perspectives and to the products that we make. It is also a great opportunity to connect folks on a more intimate level across communities. Aquaculture really provides an opportunity to get outside during a time where we are kind of all stuck inside. You can kind of start to see the connection to the environment when you start to -- so tapping into that is really important.

Maggie:

Yeah and I think Mackenzie asks us a question that was just sent to us, will you be doing formal message testing to develop these messages and products?

Brianna:

So that is something that we would hand over to our mini grant project proposals, so I am here to coordinate folks and provide platforms in which to engage formally and informally in discussion. Our mini grant opportunities are really looking for high risk, high reward projects that might think outside the box a little bit from traditional aquaculture messaging initiatives and those are things that we would hope you would build into the project proposal. As I mentioned, that mini grant opportunity will roll out early 2021 and we are kind of working right now to adapt to COVID with that and hoping to highly encourage if not require

partnerships in those but again, we are working with our CELC members to understand their capacity to engage in this opportunity.

Maggie:

A couple of people are typing so let me make sure everyone has the chance to ask questions. While I can ask one more question while we are waiting. Going off of my original question about social science and everything, I am also curious about how maybe education and improving perception of aquaculture is related to social justice and social equity and addressing social concerns in aquaculture than maybe go beyond a simple exhibit. But you know, that are key concerns in certain areas like addressing such issues like access and marine resource tenure.

Brianna:

So again, these are topics that I think would really benefit from a small group of folks kind of brainstorming ways in which to combat those issues. I think that aquaculture presents a unique but also old challenge. Aquaculture is something that has been going on for centuries and centuries and it is something that has really integrated some traditional knowledge into it; however, traditional knowledge isn't always highlighted as the source of expert knowledge or creating programming and messaging so I think it is really important to keep these things in mind and to start from this community level and look at all the different perspectives that are involved and make sure those perspectives are part of the conversation and if not just addressed moving forward so things like that I think are things that need to be brought up even though they are complex discussions. They need to be brought up often and continuously.

Maggie:

All right now we have a question from Tarah Mays. Great presentation, thank you. What kind of engagement opportunities do you have in the pipeline for educating different students about the opportunities for careers in the aquaculture industry specifically in the U.S. since the aquaculture community is still pretty small?

Brianna:

This is something that we have identified as a gap kind of recently that we need to work on, and there are a couple of different areas to this. There is the workforce development angle where it is more entrepreneurial folks looking to enter a career in aquaculture, and there is also this kind of STEM engagement and career awareness level that taps into educating youth earlier on about aquaculture and the careers available to them in aquaculture. I think that many of us know that aquaculture is an up and coming topic if not already up and coming in the United States. It is something that is going to provide a lot of jobs moving forward and in addition to feeding hopefully a lot of folks that might need access to alternative sources of protein, these are things that we do not have a clear pipeline on right now. However, I can name a handful of programs and formal K-12 initiatives that do things such as Aquaculture in Action, which brings aqua equipment into schools for kids to create their own systems. These are skills that we should start to build into some STEM engagement opportunities so that kids are aware as they decide, you know, what career path they want to go on, what different opportunities aquaculture provides so we have identified a need and it is something that we hope to talk about in our workshops moving forward.

Maggie:

So Sam asks what is a Knauss fellowship like being away from physical office life at Silver Springs?

Brianna:

Well, I am coming to you from Boston, Massachusetts. I recently relocated to my home state to be a bit closer to family during all of this. It has been an interesting year and I will just say that I am incredibly lucky for being in the office that I ended up with and with the colleagues and the support system really that I ended up with. It has been interesting just like it has been interesting for everyone else so yes, my computer, my tiny little laptop has become everything.

Maggie:

All right so Elliott Nelson said I know this project is focused on NOAA and NOAA partners, but how might this initiative interface with extension in landlocked states, and initiatives of the different USDA Regional Aquaculture Centers? (apologies if this was already addressed, I was distracted by stampeding children for a bit there)

Brianna:

No, no worries, Elliott, I am distracted by stampeding children right outside my window. I don't know if everyone has been able to hear them. So we have quite a few extension specialists that are engaged in some of these conversations. We would love to kind of pinpoint and really bring in some more Great Lakes folks and the Great Lakes collaborative is one way we hope to do this. I think so if we are talking about the many grants and the workshop discussion opportunities, I think these are things to bring up in the workshop discussion, different partners that might provide different resources and expertise than know it. NOAA itself and educators can provide if that makes sense, so you mentioned the USDA original aquaculture centers. I think you have a different angle than the groups that we have identified previously to participate in this and if there are folks that you can connect with that, you know, or connect us with that you might believe have some information then please, feel free to reach out with some contacts for us because landlocked is just as important as resourceful communities, aquaculture happens there and I have personally worked in a sushi restaurant in Boulder, Colorado because I know how much people like fish and sushi in that place or doesn't just stop as you go inland.

Maggie:

We may have time for one more question. I did see one more person typing so I want to make sure everything has been answered. So, yes, we have a few more minutes left until 5:00. But I don't see anyone else typing so maybe someone changed their mind, but if you want to ask you a question there is her email right there and please reach out to her and like I said, you will be getting the recording tomorrow, hopefully, it will send out automatically and if you don't get it I will check to make sure everyone has it who was on this today and that everyone gets the recording, and it will also be on our website as well so you can feel free to watch it later again and share with your colleagues. And this is a quarterly webinar series so hopefully we will have another in January or so. Again, all of these are open to the public and typically focused on aquaculture education. Thanks, everyone for joining and we hope you have a good rest of your week and day. So, thank you.

Brianna:

Thanks, everyone.